Linux Malware Incident Response A Practitioners Guide To Forensic Collection And Examination Of Volatile Data An Excerpt From Malware Forensic Field Guide For Linux Systems

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Malware Forensics Field Guide for Linux Systems - Cameron H. Malin 2013-12-07
Malware Forensics Field Guide for Linux Systems is a handy reference that shows students the essential tools needed to do computer forensics analysis at the crime scene. It is part of Syngress Digital Forensics Field Guides, a series of companions for any digital and computer forensic student, investigator or analyst. Each Guide is a toolkit, with checklists for specific tasks, case studies of difficult situations, and expert analyst tips that will aid in recovering data from digital media that will be used in criminal prosecution. This book collects data from all methods of electronic data storage and transfer devices, including computers, laptops, PDAs and the images, spreadsheets and other types of files stored on these devices. It is specific for Linux-based systems, where new malware is developed every day. The authors are world-renowned leaders in investigating and analyzing malicious code. Chapters cover malware incident response - volatile data collection and examination on a live Linux system; analysis of physical and process memory dumps for malware artifacts; post-mortem forensics - discovering and extracting malware and associated artifacts from Linux systems; legal considerations; file identification and profiling initial analysis of a suspect file on a Linux system; and analysis of a suspect program. This book will appeal to computer forensic investigators, analysts, and specialists. A compendium of on-the-job tasks and checklists Specific for Linux-based systems in which new malware is developed every day Authors are world-renowned leaders in investigating and analyzing malicious code
Practical Linux Forensics - Bruce Nikkel 2021-10-12
A resource to help forensic investigators locate, analyze, and understand

digital evidence found on modern Linux systems after a crime, security incident or cyber attack. Practical Linux Forensics dives into the technical details of analyzing postmortem forensic images of Linux systems which have been misused, abused, or the target of malicious attacks. It helps forensic investigators locate and analyze digital evidence found on Linux desktops, servers, and IoT devices. Throughout the book, you learn how to identify digital artifacts which may be of interest to an investigation, draw logical conclusions, and reconstruct past activity from incidents. You'll learn how Linux works from a digital forensics and investigation perspective, and how to interpret evidence from Linux environments. The techniques shown are intended to be independent of the forensic analysis platforms and tools used. Learn how to: • Extract evidence from storage devices and analyze partition tables, volume managers, popular Linux filesystems (Ext4, Btrfs, and Xfs), and encryption • Investigate evidence from Linux logs, including traditional syslog, the systemd journal, kernel and audit logs, and logs from daemons and applications • Reconstruct the Linux startup process, from boot loaders (UEFI and Grub) and kernel initialization, to systemd unit files and targets leading up to a graphical login • Perform analysis of power, temperature, and the physical environment of a Linux machine, and find evidence of sleep, hibernation, shutdowns, reboots, and crashes • Examine installed software, including distro installers, package formats, and package management systems from Debian, Fedora, SUSE, Arch, and other distros • Perform analysis of time and Locale settings, internationalization including language and keyboard settings, and geolocation on a Linux system • Reconstruct user login sessions (shell, X11 and Wayland), desktops (Gnome, KDE, and others) and analyze keyrings, wallets, trash cans, clipboards, thumbnails, recent files and other desktop artifacts • Analyze network configuration, including interfaces, addresses, network managers, DNS, wireless artifacts (Wi-Fi, Bluetooth, WWAN), VPNs (including WireGuard), firewalls, and proxy settings • Identify traces of attached peripheral devices (PCI, USB, Thunderbolt, Bluetooth) including external storage, cameras, and mobiles, and reconstruct printing and scanning activity

Wireshark for Security Professionals - Jessey Bullock 2017-03-20 Master Wireshark to solve real-world security problems If you don't already use Wireshark for a wide range of information security tasks, you will after this book. Mature and powerful, Wireshark is commonly used to find root cause of challenging network issues. This book extends that power to information security professionals, complete with a downloadable, virtual lab environment. Wireshark for Security Professionals covers both offensive and defensive concepts that can be applied to essentially any InfoSec role. Whether into network security, malware analysis, intrusion detection, or penetration testing, this book demonstrates Wireshark through relevant and useful examples. Master Wireshark through both lab scenarios and exercises. Early in the book, a virtual lab environment is provided for the purpose of getting hands-on experience with Wireshark. Wireshark is combined with two popular platforms: Kali, the security-focused Linux distribution, and the Metasploit Framework, the open-source framework for security testing. Lab-based virtual systems generate network traffic for analysis, investigation and demonstration. In addition to following along with the labs you will be challenged with end-of-chapter exercises to expand on covered material. Lastly, this book explores Wireshark with Lua, the light-weight programming language. Lua allows you to extend and customize Wireshark's features for your needs as a security professional. Lua source code is available both in the book and online. Lua code and lab source code are available online through GitHub, which the book also introduces. The book's final two chapters greatly draw on Lua and TShark, the command-line interface of Wireshark. By the end of the book you will gain the following: Master the basics of Wireshark Explore the virtual w4sp-lab environment that mimics a real-world network Gain experience using the Debian-based Kali OS among other systems Understand the technical details behind network attacks Execute exploitation and grasp offensive and defensive activities, exploring them through Wireshark Employ Lua to extend Wireshark features and create useful scripts To sum up, the book content, labs and online material, coupled with many referenced sources of PCAP traces, together present

a dynamic and robust manual for information security professionals seeking to leverage Wireshark.

Malware Forensics Field Guide for Windows Systems - Cameron H. Malin 2012-06-13

Addresses the legal concerns often encountered on-site --

Malware Forensics Field Guide for Windows Systems - Cameron H. Malin 2012-05-11

Malware Forensics Field Guide for Windows Systems is a handy reference that shows students the essential tools needed to do computer forensics analysis at the crime scene. It is part of Syngress Digital Forensics Field Guides, a series of companions for any digital and computer forensic student, investigator or analyst. Each Guide is a toolkit, with checklists for specific tasks, case studies of difficult situations, and expert analyst tips that will aid in recovering data from digital media that will be used in criminal prosecution. This book collects data from all methods of electronic data storage and transfer devices, including computers, laptops, PDAs and the images, spreadsheets and other types of files stored on these devices. It is specific for Windows-based systems, the largest running OS in the world. The authors are world-renowned leaders in investigating and analyzing malicious code. Chapters cover malware incident response - volatile data collection and examination on a live Windows system; analysis of physical and process memory dumps for malware artifacts; post-mortem forensics - discovering and extracting malware and associated artifacts from Windows systems; legal considerations; file identification and profiling initial analysis of a suspect file on a Windows system; and analysis of a suspect program. This field guide is intended for computer forensic investigators, analysts, and specialists. A condensed hand-held guide complete with on-the-job tasks and checklists Specific for Windows-based systems, the largest running OS in the world Authors are world-renowned leaders in investigating and analyzing malicious code

Linux - K. K. Mookhey 2005

This document, which focuses on the Linux security issues for one of the more popular versions of Linux, Red Hat version 9/Fedora, provides a standard reference for Linux security controls and their audit for security administrators, security professionals and information systems auditors. It provides the following guidance to IT management: * The business and technology drivers for Linux * The vulnerabilities of the Linux operating system * Risk management issues with an action-oriented perspective * Linux security software * How to secure Linux installations to fulfill the control objectives of two well-known standards-COBIT and ISO 17799 * Detailed internal control questionnaires. Call +1.847.253.1545 ext. 401, visit www.isaca.org/bookstore or e-mail bookstore@isaca.org for more information.

Malware Forensics - Cameron H. Malin 2008-08-08

Malware Forensics: Investigating and Analyzing Malicious Code covers the complete process of responding to a malicious code incident. Written by authors who have investigated and prosecuted federal malware cases, this book deals with the emerging and evolving field of live forensics, where investigators examine a computer system to collect and preserve critical live data that may be lost if the system is shut down. Unlike other forensic texts that discuss live forensics on a particular operating system, or in a generic context, this book emphasizes a live forensics and evidence collection methodology on both Windows and Linux operating systems in the context of identifying and capturing malicious code and evidence of its effect on the compromised system. It is the first book detailing how to perform live forensic techniques on malicious code. The book gives deep coverage on the tools and techniques of conducting runtime behavioral malware analysis (such as file, registry, network and port monitoring) and static code analysis (such as file identification and profiling, strings discovery, armoring/packing detection, disassembling, debugging), and more. It explores over 150 different tools for malware incident response and analysis, including forensic tools for preserving and analyzing computer memory. Readers from all educational and technical backgrounds will benefit from the clear and concise explanations of the applicable legal case law and statutes covered in every chapter. In addition to the technical topics discussed, this book also offers critical legal considerations addressing the legal ramifications

and requirements governing the subject matter. This book is intended for system administrators, information security professionals, network personnel, forensic examiners, attorneys, and law enforcement working with the inner-workings of computer memory and malicious code. * Winner of Best Book Bejtlich read in 2008! * http://taosecurity.blogspot.com/2008/12/best-book-bejtlich-read-in-2008.html * Authors have investigated and prosecuted federal malware cases, which allows them to provide unparalleled insight to the reader. * First book to detail how to perform "live forensic" techniques on malicous code. * In addition to the technical topics discussed, this book also offers critical legal considerations addressing the legal ramifications and requirements governing the subject matter

Practical Forensic Imaging - Bruce Nikkel 2016-09-01

Forensic image acquisition is an important part of postmortem incident response and evidence collection. Digital forensic investigators acquire, preserve, and manage digital evidence to support civil and criminal cases; examine organizational policy violations; resolve disputes; and analyze cyber attacks. Practical Forensic Imaging takes a detailed look at how to secure and manage digital evidence using Linux-based command line tools. This essential guide walks you through the entire forensic acquisition process and covers a wide range of practical scenarios and situations related to the imaging of storage media. You'll learn how to: –Perform forensic imaging of magnetic hard disks, SSDs and flash drives, optical discs, magnetic tapes, and legacy technologies –Protect attached evidence media from accidental modification –Manage large forensic image files, storage capacity, image format conversion, compression, splitting, duplication, secure transfer and storage, and secure disposal –Preserve and verify evidence integrity with cryptographic and piecewise hashing, public key signatures, and RFC-3161 timestamping –Work with newer drive and interface technologies like NVME, SATA Express, 4K-native sector drives, SSHDs, SAS, UASP/USB3x, and Thunderbolt –Manage drive security such as ATA passwords; encrypted thumb drives; Opal self-encrypting drives; OS-encrypted drives using BitLocker, FileVault, and TrueCrypt; and others –Acquire usable images from more complex or challenging situations such as RAID systems, virtual machine images, and damaged media With its unique focus on digital forensic acquisition and evidence preservation, Practical Forensic Imaging is a valuable resource for experienced digital forensic investigators wanting to advance their Linux skills and experienced Linux administrators wanting to learn digital forensics. This is a must-have reference for every digital forensics lab.

CASP+ CompTIA Advanced Security Practitioner Study Guide - Jeff T. Parker 2019-01-23

Comprehensive coverage of the new CASP+ exam, with hands-on practice and interactive study tools The CASP+ CompTIA Advanced Security Practitioner Study Guide: Exam CAS-003, Third Edition, offers invaluable preparation for exam CAS-003. Covering 100 percent of the exam objectives, this book provides expert walk-through of essential security concepts and processes to help you tackle this challenging exam with full confidence. Practical examples and real-world insights illustrate critical topics and show what essential practices look like on the ground, while detailed explanations of technical and business concepts give you the background you need to apply identify and implement appropriate security solutions. End-of-chapter reviews help solidify your understanding of each objective, and cutting-edge exam prep software features electronic flashcards, hands-on lab exercises, and hundreds of practice questions to help you test your knowledge in advance of the exam. The next few years will bring a 45-fold increase in digital data, and at least one third of that data will pass through the cloud. The level of risk to data everywhere is growing in parallel, and organizations are in need of qualified data security professionals; the CASP+ certification validates this in-demand skill set, and this book is your ideal resource for passing the exam. Master cryptography, controls, vulnerability analysis, and network security Identify risks and execute mitigation planning, strategies, and controls Analyze security trends and their impact on your organization Integrate business and technical components to achieve a secure enterprise architecture CASP+ meets the ISO 17024 standard, and is approved by U.S. Department of Defense to fulfill Directive

8570.01-M requirements. It is also compliant with government regulations under the Federal Information Security Management Act (FISMA). As such, this career-building credential makes you in demand in the marketplace and shows that you are qualified to address enterprise-level security concerns. The CASP+ CompTIA Advanced Security Practitioner Study Guide: Exam CAS-003, Third Edition, is the preparation resource you need to take the next big step for your career and pass with flying colors.

CASP: CompTIA Advanced Security Practitioner Study Guide Authorized Courseware - Michael Gregg 2012-02-16

Get Prepared for CompTIA Advanced Security Practitioner (CASP) Exam Targeting security professionals who either have their CompTIA Security+ certification or are looking to achieve a more advanced security certification, this CompTIA Authorized study guide is focused on the new CompTIA Advanced Security Practitioner (CASP) Exam CAS-001. Veteran IT security expert and author Michael Gregg details the technical knowledge and skills you need to conceptualize, design, and engineer secure solutions across complex enterprise environments. He prepares you for aspects of the certification test that assess how well you apply critical thinking and judgment across a broad spectrum of security disciplines. Featuring clear and concise information on crucial security topics, this study guide includes examples and insights drawn from real-world experience to help you not only prepare for the exam, but also your career. You will get complete coverage of exam objectives for all topic areas including: Securing Enterprise-level Infrastructures Conducting Risk Management Assessment Implementing Security Policies and Procedures Researching and Analyzing Industry Trends Integrating Computing, Communications and Business Disciplines Additionally, you can download a suite of study tools to help you prepare including an assessment test, two practice exams, electronic flashcards, and a glossary of key terms. Go to www.sybex.com/go/casp and download the full set of electronic test prep tools.

Computer Incident Response and Forensics Team Management - Leighton Johnson 2013-11-08

Computer Incident Response and Forensics Team Management provides security professionals with a complete handbook of computer incident response from the perspective of forensics team management. This unique approach teaches readers the concepts and principles they need to conduct a successful incident response investigation, ensuring that proven policies and procedures are established and followed by all team members. Leighton R. Johnson III describes the processes within an incident response event and shows the crucial importance of skillful forensics team management, including when and where the transition to forensics investigation should occur during an incident response event. The book also provides discussions of key incident response components. Provides readers with a complete handbook on computer incident response from the perspective of forensics team management Identify the key steps to completing a successful computer incident response investigation Defines the qualities necessary to become a successful forensics investigation team member, as well as the interpersonal relationship skills necessary for successful incident response and forensics investigation teams

The Neuroscience of Handwriting - Michael P. Caligiuri 2012-02-22

The Daubert trilogy of U.S. Supreme Court cases has established that scientific expert testimony must be based on science grounded in empirical research. As such, greater scrutiny is being placed on questioned document examination generally, and handwriting comparison in particular. Bridging the gap between theory and practice, The Neuroscience of Handwriting: Applications in Forensic Document Examination examines the essential neuroscientific principles underlying normal and pathological hand motor control and handwriting. Topics discussed include: Fundamental principles in the neuroanatomy and neurochemistry of hand motor control and their application to research in handwriting The epidemiology, pathophysiology, and motor characteristics of neurogenerative diseases such as Parkinson’s, Huntington’s, Alzheimer’s, multiple sclerosis, essential tremor, and motor neuron disease and their effects on handwriting Psychotropic medications prescribed for depression, bipolar disorder, and psychosis;

their mechanisms of action; and their effect on motor behavior and handwriting The impact of substance abuse on handwriting An overview of the aging process and its effects on motor control and handwriting The kinematic approach and new findings on the kinematic analyses of genuine, disguised, and forged signatures The authors' laboratory research on authentic and forged signatures An essential resource for professionals and researchers in the forensic documentation examination and legal communities, this volume provides a window on the scientific process of signature and handwriting authentication, integrating the extensive research on neural processes and exploring how disease, medication, and advanced age alter these processes.

The Practice of Network Security Monitoring - Richard Bejtlich 2013-07-15

Network security is not simply about building impenetrable walls—determined attackers will eventually overcome traditional defenses. The most effective computer security strategies integrate network security monitoring (NSM): the collection and analysis of data to help you detect and respond to intrusions. In The Practice of Network Security Monitoring, Mandiant CSO Richard Bejtlich shows you how to use NSM to add a robust layer of protection around your networks—no prior experience required. To help you avoid costly and inflexible solutions, he teaches you how to deploy, build, and run an NSM operation using open source software and vendor-neutral tools. You'll learn how to: –Determine where to deploy NSM platforms, and size them for the monitored networks –Deploy stand-alone or distributed NSM installations –Use command line and graphical packet analysis tools, and NSM consoles –Interpret network evidence from server-side and client-side intrusions –Integrate threat intelligence into NSM software to identify sophisticated adversaries There's no foolproof way to keep attackers out of your network. But when they get in, you'll be prepared. The Practice of Network Security Monitoring will show you how to build a security net to detect, contain, and control them. Attacks are inevitable, but losing sensitive data shouldn't be.

Handbook of Digital Forensics and Investigation - Eoghan Casey 2009-10-07

Handbook of Digital Forensics and Investigation builds on the success of the Handbook of Computer Crime Investigation, bringing together renowned experts in all areas of digital forensics and investigation to provide the consummate resource for practitioners in the field. It is also designed as an accompanying text to Digital Evidence and Computer Crime. This unique collection details how to conduct digital investigations in both criminal and civil contexts, and how to locate and utilize digital evidence on computers, networks, and embedded systems. Specifically, the Investigative Methodology section of the Handbook provides expert guidance in the three main areas of practice: Forensic Analysis, Electronic Discovery, and Intrusion Investigation. The Technology section is extended and updated to reflect the state of the art in each area of specialization. The main areas of focus in the Technology section are forensic analysis of Windows, Unix, Macintosh, and embedded systems (including cellular telephones and other mobile devices), and investigations involving networks (including enterprise environments and mobile telecommunications technology). This handbook is an essential technical reference and on-the-job guide that IT professionals, forensic practitioners, law enforcement, and attorneys will rely on when confronted with computer related crime and digital evidence of any kind. *Provides methodologies proven in practice for conducting digital investigations of all kinds *Demonstrates how to locate and interpret a wide variety of digital evidence, and how it can be useful in investigations *Presents tools in the context of the investigative process, including EnCase, FTK, ProDiscover, foremost, XACT, Network Miner, Splunk, flow-tools, and many other specialized utilities and analysis platforms *Case examples in every chapter give readers a practical understanding of the technical, logistical, and legal challenges that arise in real investigations

CASP+ CompTIA Advanced Security Practitioner Study Guide - Nadean H. Tanner 2022-09-15

Prepare to succeed in your new cybersecurity career with the challenging and sought-after CASP+ credential In the newly updated

Fourth Edition of CASP+ CompTIA Advanced Security Practitioner Study Guide Exam CAS-004, risk management and compliance expert Jeff Parker walks you through critical security topics and hands-on labs designed to prepare you for the new CompTIA Advanced Security Professional exam and a career in cybersecurity implementation. Content and chapter structure of this Fourth edition was developed and restructured to represent the CAS-004 Exam Objectives. From operations and architecture concepts, techniques and requirements to risk analysis, mobile and small-form factor device security, secure cloud integration, and cryptography, you'll learn the cybersecurity technical skills you'll need to succeed on the new CAS-004 exam, impress interviewers during your job search, and excel in your new career in cybersecurity implementation. This comprehensive book offers: Efficient preparation for a challenging and rewarding career in implementing specific solutions within cybersecurity policies and frameworks A robust grounding in the technical skills you'll need to impress during cybersecurity interviews Content delivered through scenarios, a strong focus of the CAS-004 Exam Access to an interactive online test bank and study tools, including bonus practice exam questions, electronic flashcards, and a searchable glossary of key terms Perfect for anyone preparing for the CASP+ (CAS-004) exam and a new career in cybersecurity, CASP+ CompTIA Advanced Security Practitioner Study Guide Exam CAS-004 is also an ideal resource for current IT professionals wanting to promote their cybersecurity skills or prepare for a career transition into enterprise cybersecurity.

Reversing - Eldad Eilam 2011-12-12

Beginning with a basic primer on reverse engineering-including computer internals, operating systems, and assembly language-and then discussing the various applications of reverse engineering, this book provides readers with practical, in-depth techniques for software reverse engineering. The book is broken into two parts, the first deals with security-related reverse engineering and the second explores the more practical aspects of reverse engineering. In addition, the author explains how to reverse engineer a third-party software library to improve interfacing and how to reverse engineer a competitor's software to build a better product. * The first popular book to show how software reverse engineering can help defend against security threats, speed up development, and unlock the secrets of competitive products * Helps developers plug security holes by demonstrating how hackers exploit reverse engineering techniques to crack copy-protection schemes and identify software targets for viruses and other malware * Offers a primer on advanced reverse-engineering, delving into "disassembly"-code-level reverse engineering-and explaining how to decipher assembly language

CEH Certified Ethical Hacker Study Guide - Kimberly Graves 2010-06-03

Full Coverage of All Exam Objectives for the CEH Exams 312-50 and EC0-350 Thoroughly prepare for the challenging CEH Certified Ethical Hackers exam with this comprehensive study guide. The book provides full coverage of exam topics, real-world examples, and includes a CD with chapter review questions, two full-length practice exams, electronic flashcards, a glossary of key terms, and the entire book in a searchable pdf e-book. What's Inside: Covers ethics and legal issues, footprinting, scanning, enumeration, system hacking, trojans and backdoors, sniffers, denial of service, social engineering, session hijacking, hacking Web servers, Web application vulnerabilities, and more Walks you through exam topics and includes plenty of real-world scenarios to help reinforce concepts Includes a CD with an assessment test, review questions, practice exams, electronic flashcards, and the entire book in a searchable pdf

CASP CompTIA Advanced Security Practitioner Study Guide - Michael Gregg 2014-10-27

NOTE: The exam this book covered, CASP: CompTIA Advanced Security Practitioner (Exam CAS-002), was retired by CompTIA in 2019 and is no longer offered. For coverage of the current exam CASP+ CompTIA Advanced Security Practitioner: Exam CAS-003, Third Edition, please look for the latest edition of this guide: CASP+ CompTIA Advanced Security Practitioner Study Guide: Exam CAS-003, Third Edition (9781119477648). CASP: CompTIA Advanced Security Practitioner Study

Guide: CAS-002 is the updated edition of the bestselling book covering the CASP certification exam. CompTIA approved, this guide covers all of the CASP exam objectives with clear, concise, thorough information on crucial security topics. With practical examples and insights drawn from real-world experience, the book is a comprehensive study resource with authoritative coverage of key concepts. Exam highlights, end-of-chapter reviews, and a searchable glossary help with information retention, and cutting-edge exam prep software offers electronic flashcards and hundreds of bonus practice questions. Additional hands-on lab exercises mimic the exam's focus on practical application, providing extra opportunities for readers to test their skills. CASP is a DoD 8570.1-recognized security certification that validates the skillset of advanced-level IT security professionals. The exam measures the technical knowledge and skills required to conceptualize, design, and engineer secure solutions across complex enterprise environments, as well as the ability to think critically and apply good judgment across a broad spectrum of security disciplines. This study guide helps CASP candidates thoroughly prepare for the exam, providing the opportunity to: Master risk management and incident response Sharpen research and analysis skills Integrate computing with communications and business Review enterprise management and technical component integration Experts predict a 45-fold increase in digital data by 2020, with one-third of all information passing through the cloud. Data has never been so vulnerable, and the demand for certified security professionals is increasing quickly. The CASP proves an IT professional's skills, but getting that certification requires thorough preparation. This CASP study guide provides the information and practice that eliminate surprises on exam day. Also available as a set, Security Practitoner & Crypotography Set, 9781119071549 with Applied Cryptography: Protocols, Algorithms, and Source Code in C, 2nd Edition.

Android Forensics - Andrew Hoog 2011-06-15

The open source nature of the platform has not only established a new direction for the industry, but enables a developer or forensic analyst to understand the device at the most fundamental level. Android Forensics covers an open source mobile device platform based on the Linux 2.6 kernel and managed by the Open Handset Alliance. The Android platform is a major source of digital forensic investigation and analysis. This book provides a thorough review of the Android platform including supported hardware devices, the structure of the Android development project and implementation of core services (wireless communication, data storage and other low-level functions). Finally, it will focus on teaching readers how to apply actual forensic techniques to recover data. Ability to forensically acquire Android devices using the techniques outlined in the book Detailed information about Android applications needed for forensics investigations Important information about SQLite, a file based structured data storage relevant for both Android and many other platforms.

Investigating Windows Systems - Harlan Carvey 2018-08-14

Unlike other books, courses and training that expect an analyst to piece together individual instructions into a cohesive investigation, Investigating Windows Systems provides a walk-through of the analysis process, with descriptions of the thought process and analysis decisions along the way. Investigating Windows Systems will not address topics which have been covered in other books, but will expect the reader to have some ability to discover the detailed usage of tools and to perform their own research. The focus of this volume is to provide a walk-through of the analysis process, with descriptions of the thought process and the analysis decisions made along the way. A must-have guide for those in the field of digital forensic analysis and incident response. Provides the reader with a detailed walk-through of the analysis process, with decision points along the way, assisting the user in understanding the resulting data Coverage will include malware detection, user activity, and how to set up a testing environment Written at a beginner to intermediate level for anyone engaging in the field of digital forensic analysis and incident response

Mobile Malware Attacks and Defense - Ken Dunham 2008-11-12

Malware has gone mobile, and the security landscape is changing quickly with emerging attacks on cell phones, PDAs, and other mobile devices.

This first book on the growing threat covers a wide range of malware targeting operating systems like Symbian and new devices like the iPhone. Examining code in past, current, and future risks, protect your banking, auctioning, and other activities performed on mobile devices. * Visual Payloads View attacks as visible to the end user, including notation of variants. * Timeline of Mobile Hoaxes and Threats Understand the history of major attacks and horizon for emerging threates. * Overview of Mobile Malware Families Identify and understand groups of mobile malicious code and their variations. * Taxonomy of Mobile Malware Bring order to known samples based on infection, distribution, and payload strategies. * Phishing, SMishing, and Vishing Attacks Detect and mitigate phone-based phishing (vishing) and SMS phishing (SMishing) techniques. * Operating System and Device Vulnerabilities Analyze unique OS security issues and examine offensive mobile device threats. * Analyze Mobile Malware Design a sandbox for dynamic software analysis and use MobileSandbox to analyze mobile malware. * Forensic Analysis of Mobile Malware Conduct forensic analysis of mobile devices and learn key differences in mobile forensics. * Debugging and Disassembling Mobile Malware Use IDA and other tools to reverse-engineer samples of malicious code for analysis. * Mobile Malware Mitigation Measures Qualify risk, understand threats to mobile assets, defend against attacks, and remediate incidents. * Understand the History and Threat Landscape of Rapidly Emerging Mobile Attacks * Analyze Mobile Device/Platform Vulnerabilities and Exploits * Mitigate Current and Future Mobile Malware Threats

Rootkits and Bootkits - Alex Matrosov 2019-05-07

Rootkits and Bootkits will teach you how to understand and counter sophisticated, advanced threats buried deep in a machine’s boot process or UEFI firmware. With the aid of numerous case studies and professional research from three of the world’s leading security experts, you’ll trace malware development over time from rootkits like TDL3 to present-day UEFI implants and examine how they infect a system, persist through reboot, and evade security software. As you inspect and dissect real malware, you’ll learn: • How Windows boots—including 32-bit, 64-bit, and UEFI mode—and where to find vulnerabilities • The details of boot process security mechanisms like Secure Boot, including an overview of Virtual Secure Mode (VSM) and Device Guard • Reverse engineering and forensic techniques for analyzing real malware, including bootkits like Rovnix/Carberp, Gapz, TDL4, and the infamous rootkits TDL3 and Festi • How to perform static and dynamic analysis using emulation and tools like Bochs and IDA Pro • How to better understand the delivery stage of threats against BIOS and UEFI firmware in order to create detection capabilities • How to use virtualization tools like VMware Workstation to reverse engineer bootkits and the Intel Chipsec tool to dig into forensic analysis Cybercrime syndicates and malicious actors will continue to write ever more persistent and covert attacks, but the game is not lost. Explore the cutting edge of malware analysis with Rootkits and Bootkits. Covers boot processes for Windows 32-bit and 64-bit operating systems.

Linux Malware Incident Response - Cameron H. Malin 2013

This Practitioner's Guide is designed to help digital investigators identify malware on a Linux computer system, collect volatile (and relevant nonvolatile) system data to further investigation, and determine the impact malware makes on a subject system, all in a reliable, repeatable, defensible, and thoroughly documented manner.

The Official (ISC)2 Guide to the SSCP CBK - Adam Gordon 2016-05-16

The fourth edition of the Official (ISC)2® Guide to the SSCP CBK® is a comprehensive resource providing an in-depth look at the seven domains of the SSCP Common Body of Knowledge (CBK). This latest edition provides an updated, detailed guide that is considered one of the best tools for candidates striving to become an SSCP. The book offers step-by-step guidance through each of SSCP’s domains, including best practices and techniques used by the world's most experienced practitioners. Endorsed by (ISC)² and compiled and reviewed by SSCPs and subject matter experts, this book brings together a global, thorough perspective to not only prepare for the SSCP exam, but it also provides a reference that will serve you well into your career.

Digital Forensics with Open Source Tools - Cory Altheide 2011-03-29 Digital Forensics with Open Source Tools is the definitive book on investigating and analyzing computer systems and media using open source tools. The book is a technical procedural guide, and explains the use of open source tools on Mac, Linux and Windows systems as a platform for performing computer forensics. Both well-known and novel forensic methods are demonstrated using command-line and graphical open source computer forensic tools for examining a wide range of target systems and artifacts. Written by world-renowned forensic practitioners, this book uses the most current examination and analysis techniques in the field. It consists of 9 chapters that cover a range of topics such as the open source examination platform; disk and file system analysis; Windows systems and artifacts; Linux systems and artifacts; Mac OS X systems and artifacts; Internet artifacts; and automating analysis and extending capabilities. The book lends itself to use by students and those entering the field who do not have means to purchase new tools for different investigations. This book will appeal to forensic practitioners from areas including incident response teams and computer forensic investigators; forensic technicians from legal, audit, and consulting firms; and law enforcement agencies. Written by world-renowned forensic practitioners Details core concepts and techniques of forensic file system analysis Covers analysis of artifacts from the Windows, Mac, and Linux operating systems

The Art of Memory Forensics - Michael Hale Ligh 2014-07-22 Memory forensics provides cutting edge technology to help investigate digital attacks Memory forensics is the art of analyzing computer memory (RAM) to solve digital crimes. As a follow-up to the best seller Malware Analyst's Cookbook, experts in the fields of malware, security, and digital forensics bring you a step-by-step guide to memory forensics—now the most sought after skill in the digital forensics and incident response fields. Beginning with introductory concepts and moving toward the advanced, The Art of Memory Forensics: Detecting Malware and Threats in Windows, Linux, and Mac Memory is based on a five day training course that the authors have presented to hundreds of students. It is the only book on the market that focuses exclusively on memory forensics and how to deploy such techniques properly. Discover memory forensics techniques: How volatile memory analysis improves digital investigations Proper investigative steps for detecting stealth malware and advanced threats How to use free, open source tools for conducting thorough memory forensics Ways to acquire memory from suspect systems in a forensically sound manner The next era of malware and security breaches are more sophisticated and targeted, and the volatile memory of a computer is often overlooked or destroyed as part of the incident response process. The Art of Memory Forensics explains the latest technological innovations in digital forensics to help bridge this gap. It covers the most popular and recently released versions of Windows, Linux, and Mac, including both the 32 and 64-bit editions.

Intelligence-Driven Incident Response - Scott J Roberts 2017-08-21 Using a well-conceived incident response plan in the aftermath of an online security breach enables your team to identify attackers and learn how they operate. But, only when you approach incident response with a cyber threat intelligence mindset will you truly understand the value of that information. With this practical guide, you'll learn the fundamentals of intelligence analysis, as well as the best ways to incorporate these techniques into your incident response process. Each method reinforces the other: threat intelligence supports and augments incident response, while incident response generates useful threat intelligence. This book helps incident managers, malware analysts, reverse engineers, digital forensics specialists, and intelligence analysts understand, implement, and benefit from this relationship. In three parts, this in-depth book includes: The fundamentals: get an introduction to cyber threat intelligence, the intelligence process, the incident-response process, and how they all work together Practical application: walk through the intelligence-driven incident response (IDIR) process using the F3EAD process—Find, Fix Finish, Exploit, Analyze, and Disseminate The way forward: explore big-picture aspects of IDIR that go beyond individual incident-response investigations, including intelligence team building

Learning Malware Analysis - Monnappa K A 2018-06-29

Understand malware analysis and its practical implementation Key Features Explore the key concepts of malware analysis and memory forensics using real-world examples Learn the art of detecting, analyzing, and investigating malware threats Understand adversary tactics and techniques Book Description Malware analysis and memory forensics are powerful analysis and investigation techniques used in reverse engineering, digital forensics, and incident response. With adversaries becoming sophisticated and carrying out advanced malware attacks on critical infrastructures, data centers, and private and public organizations, detecting, responding to, and investigating such intrusions is critical to information security professionals. Malware analysis and memory forensics have become must-have skills to fight advanced malware, targeted attacks, and security breaches. This book teaches you the concepts, techniques, and tools to understand the behavior and characteristics of malware through malware analysis. It also teaches you techniques to investigate and hunt malware using memory forensics. This book introduces you to the basics of malware analysis, and then gradually progresses into the more advanced concepts of code analysis and memory forensics. It uses real-world malware samples, infected memory images, and visual diagrams to help you gain a better understanding of the subject and to equip you with the skills required to analyze, investigate, and respond to malware-related incidents. What you will learn Create a safe and isolated lab environment for malware analysis Extract the metadata associated with malware Determine malware's interaction with the system Perform code analysis using IDA Pro and x64dbg Reverse-engineer various malware functionalities Reverse engineer and decode common encoding/encryption algorithms Reverse-engineer malware code injection and hooking techniques Investigate and hunt malware using memory forensics Who this book is for This book is for incident responders, cyber-security investigators, system administrators, malware analyst, forensic practitioners, student, or curious security professionals interested in learning malware analysis and memory forensics. Knowledge of programming languages such as C and Python is helpful but is not mandatory. If you have written few lines of code and have a basic understanding of programming concepts, you'll be able to get most out of this book.

Malware, Rootkits & Botnets A Beginner's Guide - Christopher C. Elisan 2012-09-05

Security Smarts for the Self-Guided IT Professional Learn how to improve the security posture of your organization and defend against some of the most pervasive network attacks. Malware, Rootkits & Botnets: A Beginner's Guide explains the nature, sophistication, and danger of these risks and offers best practices for thwarting them. After reviewing the current threat landscape, the book describes the entire threat lifecycle, explaining how cybercriminals create, deploy, and manage the malware, rootkits, and botnets under their control. You'll learn proven techniques for identifying and mitigating these malicious attacks. Templates, checklists, and examples give you the hands-on help you need to get started protecting your network right away. Malware, Rootkits & Botnets: A Beginner's Guide features: Lingo--Common security terms defined so that you're in the know on the job IMHO--Frank and relevant opinions based on the author's years of industry experience Budget Note--Tips for getting security technologies and processes into your organization's budget In Actual Practice--Exceptions to the rules of security explained in real-world contexts Your Plan--Customizable checklists you can use on the job now Into Action--Tips on how, why, and when to apply new skills and techniques at work

Practical Malware Analysis - Michael Sikorski 2012-02-01

Malware analysis is big business, and attacks can cost a company dearly. When malware breaches your defenses, you need to act quickly to cure current infections and prevent future ones from occurring. For those who want to stay ahead of the latest malware, Practical Malware Analysis will teach you the tools and techniques used by professional analysts. With this book as your guide, you'll be able to safely analyze, debug, and disassemble any malicious software that comes your way. You'll learn how to: –Set up a safe virtual environment to analyze malware –Quickly extract network signatures and host-based indicators –Use key analysis tools like IDA Pro, OllyDbg, and WinDbg –Overcome malware tricks like

obfuscation, anti-disassembly, anti-debugging, and anti-virtual machine techniques –Use your newfound knowledge of Windows internals for malware analysis –Develop a methodology for unpacking malware and get practical experience with five of the most popular packers –Analyze special cases of malware with shellcode, C++, and 64-bit code Hands-on labs throughout the book challenge you to practice and synthesize your skills as you dissect real malware samples, and pages of detailed dissections offer an over-the-shoulder look at how the pros do it. You'll learn how to crack open malware to see how it really works, determine what damage it has done, thoroughly clean your network, and ensure that the malware never comes back. Malware analysis is a cat-and-mouse game with rules that are constantly changing, so make sure you have the fundamentals. Whether you're tasked with securing one network or a thousand networks, or you're making a living as a malware analyst, you'll find what you need to succeed in Practical Malware Analysis.

Incident Response & Computer Forensics, Third Edition - Jason T. Luttgens 2014-08-01

The definitive guide to incident response--updated for the first time in a decade! Thoroughly revised to cover the latest and most effective tools and techniques, Incident Response & Computer Forensics, Third Edition arms you with the information you need to get your organization out of trouble when data breaches occur. This practical resource covers the entire lifecycle of incident response, including preparation, data collection, data analysis, and remediation. Real-world case studies reveal the methods behind--and remediation strategies for--today's most insidious attacks. Architect an infrastructure that allows for methodical investigation and remediation Develop leads, identify indicators of compromise, and determine incident scope Collect and preserve live data Perform forensic duplication Analyze data from networks, enterprise services, and applications Investigate Windows and Mac OS X systems Perform malware triage Write detailed incident response reports Create and implement comprehensive remediation plans

Digital Evidence and Computer Crime - Eoghan Casey 2011-04-20

Though an increasing number of criminals are using computers and computer networks, few investigators are well versed in the issues related to digital evidence. This work explains how computer networks function and how they can be used in a crime.

Digital Forensics and Incident Response - Gerard Johansen 2017-07-24

A practical guide to deploying digital forensic techniques in response to cyber security incidents About This Book Learn incident response fundamentals and create an effective incident response framework Master forensics investigation utilizing digital investigative techniques Contains real-life scenarios that effectively use threat intelligence and modeling techniques Who This Book Is For This book is targeted at Information Security professionals, forensics practitioners, and students with knowledge and experience in the use of software applications and basic command-line experience. It will also help professionals who are new to the incident response/digital forensics role within their organization. What You Will Learn Create and deploy incident response capabilities within your organization Build a solid foundation for acquiring and handling suitable evidence for later analysis Analyze collected evidence and determine the root cause of a security incident Learn to integrate digital forensic techniques and procedures into the overall incident response process Integrate threat intelligence in digital evidence analysis Prepare written documentation for use internally or with external parties such as regulators or law enforcement agencies In Detail Digital Forensics and Incident Response will guide you through the entire spectrum of tasks associated with incident response, starting with preparatory activities associated with creating an incident response plan and creating a digital forensics capability within your own organization. You will then begin a detailed examination of digital forensic techniques including acquiring evidence, examining volatile memory, hard drive assessment, and network-based evidence. You will also explore the role that threat intelligence plays in the incident response process. Finally, a detailed section on preparing reports will help you prepare a written report for use either internally or in a courtroom. By the end of the book, you will have mastered forensic

techniques and incident response and you will have a solid foundation on which to increase your ability to investigate such incidents in your organization. Style and approach The book covers practical scenarios and examples in an enterprise setting to give you an understanding of how digital forensics integrates with the overall response to cyber security incidents. You will also learn the proper use of tools and techniques to investigate common cyber security incidents such as malware infestation, memory analysis, disk analysis, and network analysis.

Windows Registry Forensics - Harlan Carvey 2011-01-03

Windows Registry Forensics provides the background of the Windows Registry to help develop an understanding of the binary structure of Registry hive files. Approaches to live response and analysis are included, and tools and techniques for postmortem analysis are discussed at length. Tools and techniques are presented that take the student and analyst beyond the current use of viewers and into real analysis of data contained in the Registry, demonstrating the forensic value of the Registry. Named a 2011 Best Digital Forensics Book by InfoSec Reviews, this book is packed with real-world examples using freely available open source tools. It also includes case studies and a CD containing code and author-created tools discussed in the book. This book will appeal to computer forensic and incident response professionals, including federal government and commercial/private sector contractors, consultants, etc. Named a 2011 Best Digital Forensics Book by InfoSec Reviews Packed with real-world examples using freely available open source tools Deep explanation and understanding of the Windows Registry – the most difficult part of Windows to analyze forensically Includes a CD containing code and author-created tools discussed in the book

97 Things Every Information Security Professional Should Know - Christina Morillo 2021-09-14

Whether you're searching for new or additional opportunities, information security can be vast and overwhelming. In this practical guide, author Christina Morillo introduces technical knowledge from a diverse range of experts in the infosec field. Through 97 concise and useful tips, you'll learn how to expand your skills and solve common issues by working through everyday security problems. You'll also receive valuable guidance from professionals on how to navigate your career within this industry. How do you get buy-in from the C-suite for your security program? How do you establish an incident and disaster response plan? This practical book takes you through actionable advice on a wide variety of infosec topics, including thought-provoking questions that drive the direction of the field. Continuously Learn to Protect Tomorrow's Technology - Alyssa Columbus Fight in Cyber Like the Military Fights in the Physical - Andrew Harris Keep People at the Center of Your Work - Camille Stewart Infosec Professionals Need to Know Operational Resilience - Ann Johnson Taking Control of Your Own Journey - Antoine Middleton Security, Privacy, and Messy Data Webs: Taking Back Control in Third-Party Environments - Ben Brook Every Information Security Problem Boils Down to One Thing - Ben Smith Focus on the WHAT and the Why First, Not the Tool - Christina Morillo

Cyber Warfare - Jason Andress 2011-07-13

Cyber Warfare Techniques, Tactics and Tools for Security Practitioners provides a comprehensive look at how and why digital warfare is waged. This book explores the participants, battlefields, and the tools and techniques used during today's digital conflicts. The concepts discussed will give students of information security a better idea of how cyber conflicts are carried out now, how they will change in the future, and how to detect and defend against espionage, hacktivism, insider threats and non-state actors such as organized criminals and terrorists. Every one of our systems is under attack from multiple vectors - our defenses must be ready all the time and our alert systems must detect the threats every time. This book provides concrete examples and real-world guidance on how to identify and defend a network against malicious attacks. It considers relevant technical and factual information from an insider's point of view, as well as the ethics, laws and consequences of cyber war and how computer criminal law may change as a result. Starting with a definition of cyber warfare, the book’s 15 chapters

discuss the following topics: the cyberspace battlefield; cyber doctrine; cyber warriors; logical, physical, and psychological weapons; computer network exploitation; computer network attack and defense; non-state actors in computer network operations; legal system impacts; ethics in cyber warfare; cyberspace challenges; and the future of cyber war. This book is a valuable resource to those involved in cyber warfare activities, including policymakers, penetration testers, security professionals, network and systems administrators, and college instructors. The information provided on cyber tactics and attacks can also be used to assist in developing improved and more efficient procedures and technical defenses. Managers will find the text useful in improving the overall risk management strategies for their organizations. Provides concrete examples and real-world guidance on how to identify and defend your network against malicious attacks Dives deeply into relevant technical and factual information from an insider's point of view Details the ethics, laws and consequences of cyber war and how computer criminal law may change as a result

Guide to Computer Forensics and Investigations - Bill Nelson 2018-05-07

Master the skills you need to conduct a successful digital investigation with Nelson/Phillips/Steuart's GUIDE TO COMPUTER FORENSICS AND INVESTIGATIONS, Sixth Edition--the most comprehensive forensics resource available. Providing clear instruction on the tools and techniques of the trade, it walks you through every step of the computer forensics investigation--from lab setup to testifying in court. The authors also thoroughly explain how to use current forensics software. The text includes the most up-to-date coverage available of Linux and Macintosh, virtual machine software such as VMware and Virtual Box, Android, mobile devices, handheld devices, cloud forensics, email, social media and the Internet of Anything. Appropriate for learners new to the field, it is also an excellent refresher and technology update for professionals in law enforcement, investigations or computer security. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

Malware Analyst's Cookbook and DVD - Michael Ligh 2010-09-29

A computer forensics "how-to" for fighting malicious code andanalyzing incidents With our ever-increasing reliance on computers comes anever-growing risk of malware. Security professionals will findplenty of solutions in this book to the problems posed by viruses,Trojan horses, worms, spyware, rootkits, adware, and other invasivesoftware. Written by well-known malware experts, this guide revealssolutions to numerous problems and includes a DVD of customprograms and tools that illustrate the concepts, enhancing yourskills. Security professionals face a constant battle against malicioussoftware; this practical manual will improve your analyticalcapabilities and provide dozens of valuable and innovativesolutions Covers classifying malware, packing and unpacking, dynamicmalware analysis, decoding and decrypting, rootkit detection,memory forensics, open source malware research, and much more Includes generous amounts of source code in C, Python, and Perlto extend your favorite tools or build new ones, and customprograms on the DVD to demonstrate the solutions Malware Analyst's Cookbook is indispensible to ITsecurity administrators, incident responders, forensic analysts,and malware researchers.

Data Hiding Techniques in Windows OS - Nihad Ahmad Hassan 2016-09-08

"This unique book delves down into the capabilities of hiding and obscuring data object within the Windows Operating System. However, one of the most noticeable and credible features of this publication is, it takes the reader from the very basics and background of data hiding techniques, and run’s on the reading-road to arrive at some of the more complex methodologies employed for concealing data object from the human eye and/or the investigation. As a practitioner in the Digital Age, I can see this book siting on the shelves of Cyber Security Professionals, and those working in the world of Digital Forensics - it is a recommended read, and is in my opinion a very valuable asset to those who are interested in the landscape of unknown unknowns. This is a book which may well help to discover more about that which is not in immediate view of the onlooker, and open up the mind to expand its imagination beyond its accepted limitations of known knowns." - John Walker,

CSIRT/SOC/Cyber Threat Intelligence Specialist Featured in Digital Forensics Magazine, February 2017 In the digital world, the need to protect online communications increase as the technology behind it evolves. There are many techniques currently available to encrypt and secure our communication channels. Data hiding techniques can take data confidentiality to a new level as we can hide our secret messages in ordinary, honest-looking data files. Steganography is the science of hiding data. It has several categorizations, and each type has its own techniques in hiding. Steganography has played a vital role in secret communication during wars since the dawn of history. In recent days, few computer users successfully manage to exploit their Windows® machine to conceal their private data. Businesses also have deep concerns about misusing data hiding techniques. Many employers are amazed at how easily their valuable information can get out of their company walls. In many legal cases a disgruntled employee would successfully steal company private data despite all security measures implemented using simple digital hiding techniques. Human right activists who live in countries controlled by oppressive regimes need ways to smuggle their online communications without attracting surveillance monitoring systems, continuously scan in/out internet traffic for interesting keywords and other artifacts. The same applies to journalists and whistleblowers all over the world. Computer forensic investigators, law enforcements officers, intelligence services and IT security professionals need a guide to tell them where criminals can conceal their data in Windows® OS & multimedia files and how they can discover concealed data quickly and retrieve it in a forensic way. Data Hiding Techniques in Windows OS is a response to all these concerns. Data hiding topics are usually approached in most books using an academic method, with long math equations about how each hiding technique algorithm works behind the scene, and are usually targeted at people who work in the academic arenas. This book teaches professionals and end users alike how they can hide their data and discover the hidden ones using a variety of ways under the most commonly used operating system on earth, Windows®.

Virtual Honeypots - Niels Provos 2007-07-16

Honeypots have demonstrated immense value in Internet security, but physical honeypot deployment can be prohibitively complex, time-consuming, and expensive. Now, there’s a breakthrough solution. Virtual honeypots share many attributes of traditional honeypots, but you can run thousands of them on a single system-making them easier and cheaper to build, deploy, and maintain. In this hands-on, highly accessible book, two leading honeypot pioneers systematically introduce virtual honeypot technology. One step at a time, you’ll learn exactly how to implement, configure, use, and maintain virtual honeypots in your own environment, even if you’ve never deployed a honeypot before. You’ll learn through examples, including Honeyd, the acclaimed virtual honeypot created by coauthor Niels Provos. The authors also present multiple real-world applications for virtual honeypots, including network decoy, worm detection, spam prevention, and network simulation. After reading this book, you will be able to Compare high-interaction honeypots that provide real systems and services and the low-interaction honeypots that emulate them Install and configure Honeyd to simulate multiple operating systems, services, and network environments Use virtual honeypots to capture worms, bots, and other malware Create high-performance "hybrid" honeypots that draw on technologies from both low- and high-interaction honeypots Implement client honeypots that actively seek out dangerous Internet locations Understand how attackers identify and circumvent honeypots Analyze the botnets your honeypot identifies, and the malware it captures Preview the future evolution of both virtual and physical honeypots